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DEPARTMENT OF THE ARMY PAMPHLET 700-23

LOGISTICS

REPLACEMENT OF INDUSTRIAL PLANT EQUIPMENT IN THE PRODUCTION BASE SUPPORT PROGRAM

HEADQUARTERS, DEPARTMENT OF THE ARMY JUNE 1975

PAMPHLET
No. 700–23

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *20 June 1975*

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This pamphlet provides guidance for replacement of industrial plant equipment as required by AR 700–90, Army Industrial Preparedness Program. The instructions are based upon DOD Instruction 4215. 14, dated 26 October 1972 and Change 1 dated 1 February 1973.

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CHAPTER 1

REPLACEMENT OF INDUSTRIAL PLANT EQUIPMENT IN THE PRODUCTION BASE SUPPORT PROGRAM

1–1. Purpose. This pamphlet describes methods to be used to justify the replacement of industrial plant equipment (IPE). The requirements for the justification are stated in chapter 4, AR 700–90, Army Industrial Preparedness Program. The justification methods are designed to bring the cost and technical elements of a replacement action to the attention of management.

1–2. Scope. The procedures outlined in this pamphlet apply to DA installations and activities requesting funds for replacement of IPE from the Production Base Support Program (PBSP). They do not apply to organic depot maintenance facilities.

1–3. Explanation of Terms. *a. Amortization.* The process of recovering, over a period of time, the net required investment for replacing a piece of equipment through use of savings resulting from use of the new item.

b. Industrial plant equipment (IPE). IPE is that part of plant equipment with an acquisition cost of $1,000 or more; used for the purpose of cutting, abrading, grinding, shaping, forming, joining, testing, measuring, heating, treating, or otherwise altering the physical, electrical or chemical properties of materials, components, or end items entailed in manufacturing, maintenance, supply processing, assembly, or research and development operations. IPE is further identified by noun name in Joint DOD Handbooks (DSA 4215 series) as listed in ASPR 13–312 and AR 700–43.

c. Machine tools/metalworking machinery. That category of IPE consisting of power-driven, nonportable machines which remove, cut, shape, mill or otherwise form metal. These machines are described under Plant Equipment Codes (PEC's) 3405, 3408, 3410 through 3419 and 3441 through 3449.

d. Modernization. A broad term denoting the improvement of industrial facilities through replacement, modification rearrangement or addition of capability to achieve economic, quality, time or safety advantages.

e. Plant equipment code (PEC). A twelve-digit subclassification system within the framework of the Federal Supply Classification (FSC) to encode the primary characteristics of items of IPE.

f. Rebuild/overhaul. To restore an item to a standard as near as possible to original or new condition in appearance, performance and life expectancy.

g. Rehabilitation. The restoration of a facility or equipment to a standard as near as possible to original or new condition in appearance, performance, and life expectancy. Rehabilitation of equipment involves removal from the production line, disassembly, inspection of all parts and components, repair or replacement of defective elements using original manufacturer's tolerances or specifications, and subsequent reassembly, and return to the production line. Maintenance of large installed presses, furnaces and other equipment of similar nature which are not normally removed for rehabilitation will be considered repair for this purpose.

h. Repair. The specific maintenance required to correct material damage or failure, as necessary, to restore the end item, assembly or subassembly to the normal operating condition.

i. Replacement. This refers to replacement of one or more existing items of IPE by another item or items in order to achieve economic or industrial preparedness advantage to the DOD through increased efficiency.

1–4. Guidance. *a.* Justification for IPE replacement will accompany Provision of Industrial Facilities projects submitted as a part of the Production Base Support Program.

b. The economic justification used to support IPE replacement will be based on actual production workload or the best estimate of the actual production workload that will exist in the future.

c. The format for justification will depend on the type of IPE to be replaced. Three methods of justification are presented in this pamphlet.

These include use of Industrial Plant Equipment Replacement Analysis Worksheet (DD Form 1106), economic and technical justification, and, in certain cases, only technical justification. In addition, a record of the productivity and savings created by replacement of IPE will be maintained. The instructions for maintaining these records are also included in this pamphlet.

d. AMC major subordinate commands are required by AR 700–90 to review their active IPE in order to identify equipment that should be replaced and plan for its orderly replacement. The proposed replacements are included in the annual Production Base Support Program project request.

(1) Prior to procurement, the Defense Industrial Plant Equipment Center (DIPEC) general reserve must be screened in order to obtain a Certificate of Non-Availability (CNA).

(2) Those items that are replaced through this program are to be reported to DIPEC as excess. When a DD Form 1106 is used, the item excessed need not be the "present equipment;" rather, it can be an older, less efficient machine which has been dsiplaced in a downgrading action. The downgrading action and the actual item to be excessed must be identified in the DD Form 1106 backup.

(3) After the first year of use, equipment justified by a DD Form 1106 will be analyzed and actual operating savings and productivity increases reported through use of the DD Form 1651, Industrial Program—Equipment Modernization Post Analysis Report (which can be procured through normal publications supply channels). These reports are forwarded to the Production Equipment Agency (PEQUA). When the actual cost reduction is less than 85 percent of the projected savings in the DD Form 1106, a detailed explanation of the deviation is required.

e. PEQUA is authorized direct communication with the commanders of major subordinate commands, the subordinate installations and activities, and separate installations and activities reporting directly to HQ, AMC. PEQUA will:

(1) Provide technical and engineering support to AMC major subordinate commands and separate installations and activities in planning, developing and executing their replacement program, including development of criteria for replacement, preparation of DD Forms 1106 and 1651, and other justification of project requests.

(2) Review all DD Forms 1106 and other replacement justifications received from AMC major subordinate commands and advise HQ, AMC, if the forms meet technical requirements. The review of DD Forms 1106 and savings analyses may include on-site evaluation of the requirement and data used for the justification.

(3) Review Post Analyses Reports (DD Forms 1651) submitted by AMC major subordinate commands and analyze the performance of the replacement program. An analysis of the program based on command reports and/or on-site reviews is forwarded to HQ, AMC, at the end of each fiscal year.

1–5. IPE Requiring Use of Industrial Plant Equipment Replacement Analysis Worksheet (DD Form 1106). *a.* The DD Form 1106 provides a systematic presentation of the cost factors associated with IPE replacement. (DD Form 1106 can be procured from Cdr, Letterkenny Army Depot, ATTN: AMXLE–ATD, Chambersburg, PA 17201.)

b. Listing of Federal Supply Classes of equipment requiring DD Form 1106 justification is contained in section I, appendix A.

c. Service life shown in section II, appendix A, is solely for use in completing the DD Form 1106. The figures are arbitrary and take into consideration an average amount of idle time customarily encountered for DOD-owned equipment. Its use is not valid in connection with actual physical or technological life expectancies of the equipment. Its sole purpose is so that all DOD elements will use the same service life for similar pieces of equipment when considering replacement.

d. The chart percentage table found in section III, appendix A, corresponds with the service life found in section II. The percentage is used in the capital cost analysis portion of the DD Form 1106.

e. Replacement savings are expected to amortize the net required investment of the new equipment within five years when used at Government-owned Government-operated (GOGO) or Government-owned Contractor-operated (GOCO) plants and within 3-1/2 years when used in Contractor-owned Contractor-operated (COCO) plants.

f. If a proposed replacement being justified with a DD Form 1106 cannot forecast complete amortization within five years through active production, the replacement will be considered an exception. The DD Form 1106 will be labeled "EXCEPTION" through the Capital Cost Analysis section and special justification provided to show why the analysis should be approved.

g. A DD Form 1106 submitted as an "EXCEPTION" will have a supplemental sheet titled "SPECIAL JUSTIFICATION" which will explain:

(1) Necessity for contract performance and for mission essentiality.

(2) Results of repair/rebuild analysis to include costs involved and narrative explanation of this alternative.

(3) Impact if replacement is not approved.

h. The analysis should indicate that the equipment to be replaced is uneconomically reparable or that the required repair or rehabilitation is such that completion of current production schedules would be difficult without the item. Before the DD Form 1106 is submitted, an analysis of the cost to repair or rebuild vs. the replacement cost must be performed. These data must show that the savings from use of new equipment is significantly more than the cost to retain the old equipment. These cost analyses must be retained as justification for the replacement.

i. When equipment is provided to contractors, use of appropriate ASPR contract clauses will be made to identify savings or other benefits expected to accrue to the Government and to adjust contract terms to recover actual savings.

1–6. Post analysis. IPE acquired through the replacement program will be subject to a post analysis evaluation. Records of increased productivity, savings and other benefits will be maintained by the major subordinate commands for use in an after-the-fact evaluation and as a foundation for future programs. The DD Form 1651, Industrial Equipment Modernization Program—Post Analysis Report, will be used to present actual increases in productivity and savings resulting from equipment replacements justified by a DD Form 1106.

CHAPTER 2

INSTRUCTIONS FOR PREPARATION OF INDUSTRIAL PLANT EQUIPMENT REPLACEMENT ANALYSIS WORKSHEET DD Form 1106

2-1. General. The replacement analysis will consist of the following:

a. A completed Industrial Plant Equipment Replacement Analysis Worksheet, DD Form 1106.

b. A separate sheet titled JUSTIFICATION. This will provide the following information:

(1) An overall evaluation of the present equipment's deficiencies.

(2) An explanation of the changes in technology or improved attachments or accessories which will be utilized by the proposed machine and how they will improve mission or contract performance. Any intangible or non-quantifiable benefits may be included.

(3) A statement regarding the feasibility of repairing or rebuilding the present equipment and any cost figures which support this alternative.

c. The narrative and numeric "back-up" for the Operating Cost Analysis and Capital Cost Analysis sections of the DD Form 1106.

2-2. Preparation. Prepare DD Form 1106 by typewriter. Explanation of terms used in DD Form 1106 and detailed instructions for its preparation follow.

a. Heading.

(1) *Analysis No.* A replacement analysis will be numbered so as to consist of two elements, separated by a dash (–), in accordance with the following:

(*a*) *Location.* A six-digit code representing the location at which the proposed item for replacement will be located (last six digits of possessor code on DD Form 1342, DOD Property Record (which can be procured through normal publications supply channels)).

(*b*) *Analysis No.* This number is assigned the analysis sheet consecutively for each Government-owned facility, contractor-operated facility, or contractor plant. Revisions involving an original DD Form 1106 are to be identified by the suffix, "Rev 1," "Rev 2," etc.

(2) *Date.* Record the month, day and year the analysis worksheet is completed or date of revision. In addition, parenthetically identify the fiscal year program in which the replacement is proposed to be funded, e.g. (FY 76).

b. Numbered items.

(1) *Activity.* The name of military or contractor facility where "present equipment" is being used.

(2) *Location.* The street, city and state where "present equipment" is being used.

(3) *Shop.* The shop number, cost center or organizational segment, as applicable, where "present equipment" is being used.

(4) *Building No.* The building number (if applicable) where "present equipment" is located.

(5) *Present equipment.* (If a group of machine tools is involved, generally describe and refer to supporting worksheets.)

(*a*) *Description.* Copy verbatim the noun description given in the appropriate Industrial Plant Equipment Handbook.* When an equipment downgrading technique is used, the item proposed to be excessed will be identified in the analysis.

(*b*) *Manufacturer.* The name of the original builder of the "present equipment."

(*c*) *Model No.* The original manufacturer's model designation if one has been assigned. If equipment is special, designate "SPEC." If single purpose, designate "SGL."

(*d*) *Plant equipment code.* The twelve-digit numerical code assigned in the appropriate Industrial Plant Equipment Handbook.*

(*e*) *Departmental No.* Enter the DIPEC control number. (Block 28a from DD Form 1342.)

(*f*) *Year built.* The year the "present equipment" was originally built.

(*g*) *Total acquisition cost.* Original acquisition cost of "present equipment" and any attachments, accessories, etc., assigned to the item. (Cost shown in Block 6 of DD Form 1342.)

*For list of Industrial Plant Equipment Handbooks, see appendix 1B of AR 700-43.

(*h*) *Quantity.* The number of "present equipment" items involved in the analysis.

(6) *Proposed equipment.*

(*a*) *Description.* Copy verbatim the noun description given in the appropriate Industrial Plant Equipment Handbook.* If the Handbook does not contain a description of the "proposed equipment," provide a complete description, including any special features and horsepower. A copy of a brochure or pamphlet describing proposed equipment may be included when available.

(*b*) *Manufacturer.* The name of the builder of the "proposed equipment."

(*c*) *Model No.* The model number assigned by manufacturer of proposed equipment, if available. If the equipment is special, designate "SPEC." If single purpose, designate "SGL."

(*d*) *Plant equipment code.* The twelve-digit numerical code assigned in the Industrial Plant Equipment Handbook.* If a code is not available in the handbook, DIPEC will be contacted in order to determine the proper code.

(*e*) *Quantity.* The number of "proposed equipment" items involved in the analysis.

(*f*) *Productivity increase ratio.* The increased productive capacity ratio which will reflect the comparison of the rate of production of the "proposed equipment" to that of the "present equipment." This figure should be developed through engineering studies and estimated production potential from equipment manufacturers.

(7) *Operating cost analysis for equivalent output (next year).* The following factors shall be considered and answers applied to columns "a" and "b" where applicable.

(*a*) *Machine load (hours next year).* The number of hours of use may be based on actual production schedules or on an estimate of future production. Column "a" will show the number of hours the "present equipment" would be used during the next twelve months following the date of the analysis while column "b" will show the number of hours the "proposed equipment" would be used during the next twelve months following the date of the analysis for equivalent production output. These hours will be in direct proportion to the productivity increase ratio (6f) of the "proposed equipment" to the "present equipment," i.e., if the "present equipment" will be used for 1800 hours for certain production output during the next twelve months and the productivity increase ratio (6f) is 3:1, then the machine load for the "proposed equipment" will be 1800 ÷ 3 = 600 hours. If an equipment downgrading technique is used in the analysis, it should be thoroughly explained in this section.

(*b*) *Direct labor.* The wages of the operator (including helper, if applicable) for the number of hours required to operate the machine. If the operator operates more than one machine at the same time, direct labor hours should be allocated accordingly.

(*c*) *Indirect labor.* Indirect labor should depict only those operating costs which vary with the replacement of the present machine. Fixed expense, such as groundkeeping, security, janitorial services, safety, etc., which will not be affected by replacement, will not be included as a cost in the analysis.

(*d*) *Fringe benefits.* The costs which include, but need not be limited to annual, sick, holiday and military leave, allowance for protective clothing, etc. This is usually expressed as a percentage of direct labor. Approximately 25 percent would be a figure that would represent the minimum applicable to Government-operated installations.

(*e*) *Maintenance.* The estimated costs of ordinary operational maintenance and repair (labor, services, parts, etc.) for the next twelve-month period. It does not include costs for major overhaul or rebuilding. When major overhaul or rebuilding of "present equipment" is an alternative, this will be the subject of a complete analysis comparing the "present equipment" as is, against rebuilding it, and further comparing the results of this analysis with an analysis of the "present equipment" against procuring new equipment.

(*f*) *Power.* The cost of power consumed. This may be obtained by multiplying the factor of cost per power unit (e.g. kilowatt-hours, cubic foot of gas, etc.) by the number of hours in (7a) multiplied by the consumption of the equipment.

(*g*) *Scrap/rework.* The costs of material and labor (including direct, indirect and fringe benefits) for parts scrapped or in need of rework when the cause of the spoilage is due to the fault of the machine. Do not include these costs of spoilage if due to the fault of the operator.

(*h*) *Tooling.* If there are any significant differences between the "present" and "proposed equipment" in the costs for additional jigs and fixtures, cutting tools, attachments and other accessories which are not considered a part of

*For list of Industrial Plant Equipment Handbooks, see appendix 1B of AR 700–43.

the basic machine, these differences should be taken into consideration. Do not include attachments and fixtures which are considered a permanent part of the machine and are included in capital costs. Consumable items such as cutting tools, abrasive wheels, etc. which are normally required on both "present" and "proposed equipment", shall not be considered unless the difference in quantities or value is significant.

(*i*) *Savings/other operations, assembly.* The dollar savings resulting from elimination or reduction of subsequent operations, reduction in inspection time, less assembly time, etc. For example, if due to better accuracy of the proposed equipment, less time is spent in the assembly of parts, these savings should be reflected as a cost against the "present equipment."

(*j*) *Other costs.* Any other costs or savings which would contribute to the completeness of the analysis. For example, savings in floor space should be reflected if this is a critical item. Also include costs in connection with numerical control, programming, tape preparation etc. under this heading.

(*k*) *Total operating costs.* The sum of figures entered in "7b" through "7j."

(*l*) *Net operating costs favoring "proposed equipment".* The result of subtracting the total in line "7(k)b" from "7(k)a."

(8) *Captital cost analysis of "proposed equipment" (next year).*

(*a*) *Acquisition cost.* The acquisition cost of the "proposed equipment" including all attachments, accessories and related items.

(*b*) *Installation, transportation and miscellaneous costs.* The cost for transportation, installation and any miscellaneous cost of preparing the "proposed equipment" for operation.

(*c*) *Total installed cost.* The result of adding "8a" and "8b."

(*d*) *Current disposal value of "present equipment."* The value of the "present equipment" if offered for sale now. If the technique of downgrading equipment is used, this figure should reflect the value of the item that will be actually excessed. It is intended that this figure will reflect the greatest amount of money which can be realized for the disposal of the equipment. Current disposal information may be obtained from the nearest Defense Surplus Sales Office (DSSO).

(*e*) *Net required investment.* This figure is obtained by subtracting "8d" from "8c."

(*f*) *Service life.* The service life of the "proposed equipment" for purposes of these analyses will be obtained from section II of appendix A. If the proposed equipment is not covered in section II the service life will be requested from the Defense Industrial Plant Equipment Center.

(*g*) *Chart percent.* This percentage will be obtained from section III of appendix A by selecting the percent indicated opposite the service life of "8f."

(*h*) *Total capital cost.* This figure is obtained by multiplying the net required investment (8e) by the chart percent (8g).

(9) *Next years savings from replacement.* This figure is obtained by subtracting the total capital cost (8h) from the net operating cost favoring the "proposed equipment" (7l).

(10) *Amortization.* In the margin below item 9, type in "Amortization, 8e/7l =" insert appropriate values and calculate years required to amortize the investment.

CHAPTER 3

INSTRUCTIONS FOR THE PREPARATION OF INDUSTRIAL EQUIPMENT MODERNIZATION PROGRAM—POST ANALYSIS REPORT (DD Form 1651)

3–1. General. The preparation of this form applies to IPE justified through use of a DD Form 1106 and acquired as part of the IPE Replacement Program. The following requirements will apply:

a. The DD Form 1651 will be prepared by the installation within two months after the first year of use. When technical difficulties are encountered during the first year that do not allow the new items to operate at least nine months out of the first year following installation, the circumstances surrounding the difficulties will be explained in this report. In addition, a follow-on DD Form 1651 will be required after the second year of operation to reflect the actual savings resulting from use of the new item during the second year. Each form will be identified as the first or second submission of the Post Analysis Report for the item.

b. All DD Forms 1651 will be reviewed and validated by the AMC Major Subordinate Command and forwarded to PEQUA on an item by item basis.

c. In those cases where actual cost reduction is less than 85 percent of the savings projected in the DD Form 1106, a detailed explanation of the reason for the deviation will be provided.

d. A copy of the approved DD Form 1106 will be attached to the Post Analysis Report.

3–2. Preparation. Prepare DD Form 1651 by typewriter. Supplemental sheets will be used to set forth the supporting details and attached to the form. The form will be prepared as follows:

a. Heading—date. Record the day, month, and year in which the post analysis is prepared or revised.

b. Numbered items.

(1) *Item 1, activity.* The name of the military or contractor facility where "new equipment" is being used.

(2) *Item 2, location.* The street, city, and state where "new equipment" is being used.

(3) *Item 3, equipment location.* The building number (if applicable) and the shop number, cost center, or organizational segment, as applicable, where "new equipment" is being used.

(4) *Item 4, DCASR/DOD REP.* Identify the administrative organization cognizant of the Government-owned, contractor-operated equipment (if applicable).

(5) *Item 5, contract.* Contract number (if applicable).

(6) *Item 6, supplement No.* Number of supplement of contract modification covering Government furnished facilities (if applicable).

(7) *Item 7, equipment data.* Most of the information required is available on DD Form 1342 issued for the "new item."

Note. If a group of plant equipment items is involved, generally describe and refer to supporting work sheets.

(*a*) *Description.* Copy verbatim the noun description given in the appropriate DSA Handbook.

(*b*) *Manufacturer.* The name of the manufacturer of the "new equipment."

(*c*) *Model No.* The manufacturer's model designation if one had been assigned If equipment is special, designate "SPEC". If single purpose, designate "SGL".

(*d*) *Quantity.* The number of "new equipment" items involved in the post analysis.

(*e*) *Plant equipment code.* The twelve-digit numerical code assigned to the "new equipment." (Recorded on DD Form 1342)

(*f*) *DOD number.* Enter the DIPEC Control Number, Block 28a, and Government Tag Number, Block 3 of DD Form 1342, in this space.

(*g*) *Unit cost.* Indicate to the nearest dollar the acquisition cost, including permanently assigned accessories and attachments. (Recorded on DD Form 1342)

(*h*) *Date received.* Indicate the day, month, and year of the physical receipt of the "new equipment."

(*i*) *Date installed.* Indicate day, month, and year of completing the installation of the "new equipment".

(*j*) *Total cost.* Total cost of "new items" for the quantity indicated in item 7d. Indicate to the nearest dollar the acquisition cost, including permanently assigned accessories and attachments, and shipping and installation costs.

(*k*) *Date accepted.* Indicate day, month, and year of the acceptance of the "new equipment." (Recorded on DD Form 250 Material Inspection and Receiving Report)

(*l*) *Date released to production.* Indicate day, month, and year of the release for production of the "new equipment". Under normal circumstances, this date should indicate the beginning of the first twelve (12) months period of use on which the post analysis is based. In case of deviation, and explanation of the circumstances is required.

(*m*) *Service life—years.* See section II of appendix A.

(8) *Item 8, comparative operating cost analysis for equivalent output (estimated vs. actual).*

(*a*) *Machine load hours.*

Column a. The number of hours shown on DD Form 1106 originally approved.

Column b. The number of hours that the "new equipment" was actually used during the first twelve months of use; and the estimated number of hours the "old equipment" would have been used for equivalent production output. These hours will be in direct proportion to the *actual* productivity increase ratio. If the actual machine load is different from the estimated machine load indicated on the DD Form 1106, an explanation of the circumstances is required.

(*b*) *Items 8b, c, d, e, f, g, h, i, j, and k. Column a1 and a2.* Copy the operating costs shown on DD Form 1106 originally approved.

(*c*) *Column b1 and b2.* Operating costs will be calculated in accordance with instructions in chapter 2 as applicable, for the first twelve months of use. Costs will be based on the wage, overhead, and fringe benefit rates prevailing during the first twelve months of use.

(*d*) *Productivity increase ratio (PIR).* If the actual and forecasted PIR's are different, an explanation of the circumstances is required.

(*e*) State the Provision of Industrial Facilities project number and the DD Form 1106 analysis number and date.

(*f*) *Estimated savings next year.* Savings will be estimated on the basis of machine load expected for the second year of operation.

(*g*) *Estimated savings total two years.* Total of the savings show in column b (2) of item 8l and item 8o.

(9) *Item 9, disposition of replaced equipment.* Give a description of the item, its DIPEC control number and state whether the item has been excessed or its present status code. When the downgrading technique is used, identify all items involved, disposition and status code.

(10) *Item 10, remarks.* When the actual cost reduction in column b (2) of item 8l is less than 85 percent of the projected savings in column a (2) of item 8l, a detailed explanation of the reason for deviation is required.

APPENDIX A

INDUSTRIAL PLANT EQUIPMENT REQUIRING USE OF DD FORM 1106 JUSTIFICATION

Section I. LISTING BY FEDERAL SUPPLY CLASSIFICATION

FSC	Description
3220	Woodworking Equipment
3405	Saw and Filing Machines
3408	Machining Centers and Way Type Machines
3410	Electrical and Ultrasonic Erosion Machines
3411	Boring Machines
3412	Broaching Machines
3413	Drilling and Tapping Machines
3414	Gear Cutting and Finishing Machines
3415	Grinding Machines
3416	Lathes
3417	Milling Machines
3418	Planers and Shapers
3419	Miscellaneous Machine Tools
3422	Rolling Mills and Drawing Machines
3424	Metal Heat Treating Equipment
3431	Electric Arc Welding Equipment
3432	Electrical Resistance Welding Equipment
3433	Gas Welding, Heat Cutting and Metallizing Equipment
3436	Welding Positioners and Manipulators
3438	Miscellaneous Welding Equipment
3441	Bending and Forming Machines
3442	Hydraulic and Pneumatic Presses, Power Driven
3444	Manual Presses
3445	Punching and Shearing Machines
3446	Forging Machinery and Hammers
3447	Wire and Metal Ribbon Forming Machinery
3448	Riveting Machines
3449	Miscellaneous Secondary Metal Forming and Cutting Machines

SECTION II. SERVICE LIFE DATA

FSC 3220—Woodworking Equipment

Description	Service Life (Years)
Boring Machine	
Horizontal	24
Vertical	24
Box, Woodsteaming	24
Carving Machine	22
Circular Saw and Jointer	25
Clamp, Sash and Door	25
Dovetailing Machine	23
Dowel Turning Machine	
Automatic feed	23
Hand feed	23
Glue Spreader, Power Feed	16
Gunstock Machine	23
Jointer	
Glue and edge molder	23
Inclined bed type	22
Straight bed type	23
Lathe	
Automatic shaping	25
Bedless type	20
Fixed gap bed	22
Sliding gap bed	23
Standard bed type	23
Lock Corner Box Machine, Single End Cutter	23
Matcher, Twelve Feed Rolls	25
Milling Machines, (all types)	25
Molders, (all types)	25
Mortisers, (all types)	24
Press, Laminating	18
Routing Machine	
Pantograph	25
All others	21

FSC 3220—Woodworking Equipment—Continued

Description	Service Life (years)
Sander	
Disk and belt	16
Disk and spindle	20
Double disk	16
Drum, horizontal, power feed	24
Single belt, horiz., edge type oscillating	18
Single belt, horiz., manual stroke	18
Single belt, horiz., and vertical, variety type	18
Single belt, vertical, flat surface type	18
Single disk	15
Single spindle, oscillating	16
Saw, Band	
Inclinable	23
Inclinable, automatic angling	23
Jig	15
Resaw, vertical, single blade type	23
Rip and resaw	24
Rip, single blade type	20
Scroll and resaw	15
Standard upright type	23
Saw, Circular	
Cutoff, double end type	20
Cutoff, overhead swing type	18
Cutoff, radial type	20
Cutoff, underswing type	18
Miter, double end, plain and compound mitering	20
Non-tilt	20
Panel cutting, hand feed	15
Radial, overarm type	17
Radial, overarm type, trailer mounted	17
Rip, multiple blade, power feed	20

FSC 3220—Woodworking equipment—Continued

Description	Service Life (yers)
Rip, single blade, hand feed	20
Rip, single blade, power feed	20
Tilt arbor, double arbor type	20
Tilt arbor, single arbor type	18
Straight Line	18
Scarfing Machine	23
Shaper	24
Surfacer	
Double Cylinder Type	25
Jointer	22
Matcher	25
Matcher and Molder	25
Single Cylinder Type	23
Tenoners, (all types)	25
Timber Sizer	25
Wood Bending Machine	25
Woodworker, Universal	22

FSC 3405—Saws and Filing Machines

Description	Service Life (years)
Cut-Off Machines	
Band	19
All other types	20
Dressing Machine, Saw Blade, Circular, Friction	20
Filing Machines	
Band, Contour	25
All other types	20
Sawing and Filing Machines	
Band	25
Ram	20
Saw Filing and Setting Machine	20
Saw, Stretching Machine, Band	20
Sawing Machine, Band Contour	25
Saw Setting Machines, (all types)	20

FSC 3408—Machining Centers and Way Type Machines

Description	Service Life (years)
Machining Centers, (all types)	10
Way Type Machines	
Single station, vertical, numercial controlled	10
All other types	20

FSC 3410—Electrical and Ultrasonic Erosion Machines

Description	Service Life (years)
Electrical Discharge Machines, (all types)	12
Electrical Disintegrating Machine, Portable	19
Electrochemical Machines, (all types)	10
Ultrasonic Erosion Machines, (all types)	14

FSC 3411—Boring Machines*

Description	Service Life (years)
Boring and Drilling Machine	
Horizontal	19
Boring and Facing Machine	20
Boring and Milling Machine	22
Boring and Turning Machine, Precision, Vertical, Non-Rotating Boring Bar	
Ram Head	22
Boring and Turning Machines, (all types)	22
Boring Machine, Cylinder, Angular	25

*All Numercially Controlled Boring Machines = 10-Year Physical Life.

FSC 3411—Boring Machines—Continued*

Description	Service Life (years)
Boring Machine, Cylinder, Vertical	
Rail type	18
All other types	19
Boring Machine, Jig	
Horizontal	15
Vertical	17
Boring Machine, Precision, Horizontal	
Bridge type, double end	17
Bridge, type, single end	19
Boring Machine, Precision, Vertical	
Boring spindle type	16
Boring-Drilling-Milling Machine, Horizontal	
Floor type	20
Planer type	18
Rotating table type	16
Table type	20
Boring-Drilling-Milling Machine, Vertical	
Table type	16
Boring-Turning-Grinding Machine	20
Boring, Facing, and Turning Machine, Vertical	
Traveling Column	22

FSC 3412—Broaching Machine

Description	Service Life (years)
Broaching Machine, Angular, Single Ram	18
Broaching Machine, Horizontal	
Continous, mechanical	20
Broaching Machine, Horizontal, Dual Ram Hydraulic Drive	
Internal and Surface	18
Broaching Machines, Horizontal, Single Ram	
Hydraulic Drive, (all types)	21
Mechanical Drive, (all types)	16
Pneumatic Drive, (all types)	17
Broaching Machine, Special Design, Hydraulic	
Circular cutter type	20
Broaching, Machine, Vertical, Dual Ram Hydraulic Drive	
Internal	15
All other types	16
Mechanical Drive	
Surface	15
Broaching Machine, Vertical, Single Ram Hydraulic Drive	
Internal and Surface	16
Internal	17
Surface	16
Mechanical Drive	
Internal and surface	16
Surface	17
Pneumatic	
Surface	17

FSC 3413—Drilling and Tapping Machines

Description	Service Life (years)
Backspotfacing Machine	18
Drilling and Routing Machine, Combination	1
Drilling and Tapping Machines, Combination Gang Units (all types)	20
Drilling and Tapping Machine, Combination, Multiple Spindle, Common Power	20
Drilling Machine, Bed and Bridge, Single Spindle	22
Drilling Machine, Deep Hole	17
Drilling Machine, Head Mounted, Special Purpose	18
Drilling Machine, Multiple Spindle, Common Power Unit	20
Drilling Machines, Radial, (all types)	18
Drilling Machine, Radial, Traversing Column	

FSC 3413—Drilling and Tapping Machines—Continued

Description	*Life (years)*
Bed type	18
Carriage type	16
Track type	20
Drilling Machine, Rotating Column	
Bed type	18
Floor type	20
Drilling Machine, Turret Head	
Bench	16
Floor	18
Drilling Machine, Upright, Box Column, Single Spindle	
Bench	20
Floor	22
Drilling Machines, Upright, Gang Drills, Independent Power Units, (all types)	20
Drilling Machine, Upright, Round Column, Single Spindle	
Bench	22
Floor	24
Drilling Machine, Upright, Small Hole, Precision	
Bench	20
Drilling Machine, Wall-Post Type	
Radial	25
Tapping Machine, Gang Units	
Bench	18
Floor	20
Tapping Machine, Multiple Spindle	20
Tapping Machine, Single Spindle	
Bench	20
Floor	22

FSC 3414—Gear Cutting and Finishing Machines

Description	*Service Life (years)*
Gear Chamfering and Deburring Machine	
Flycutter type	18
Spur	20
Spur and helical	20
Spur, helical and spiral	21
Gear Cutting Machine, Form Milling Type	
Spur and rough bevel	15
All other types	18
Gear Generating Machine	
Hypoid and spiral bevel	20
Straight bevel	21
Gear Grinding Machine, Form Wheel	
Spur	19
All other types	18
Gear Grinding Machine, Generating Type	
Hypoid	19
All other types	20
Gear Grinding Machine, Non-Generating	
Spur and helical	20
Gear Hobbing Machines, (all types)	18
Gear Honing Machine	
Spur and helical	20
Gear Lapping Machine	
Helical	20
Hypoid	20
Spur and helical	21
Gear Planing Machine	
Spur and internal	22
Gear Shaper	
Spur	23
Spur and helical	19

FSC 3414—Gear Cutting and Finishing Machines—Continued

Description	*Service Life (years)*
Spur and rack	18
Gear Shaving Machine, Rotary Type	
Spur and helical	18

FSC 3415—Grinding Machines

Description	*Service Life (years)*
Grinding Machines, Broach, (all types)	18
Grinding Machines, Contour, (all types)	17
Grinding Machine, Cylindrical, External Center Type	
Plain	19
Roll	19
Universal	19
Angular bed	18
Horizontal bed	19
Chucking type	
Plain	20
Universal	18
Grinding Machine, Cylindrical, Internal	
Center hole	19
Centerless types	18
Chucking Type	
Plain	25
Universal	23
Planetary	25
Grinding Machine, Cylindrical, Vertical Single Spindle	
Tracer Control	18
Universal	
Adjustable Rail	20
Dual Spindle	18
Single Spindle	17
Grinding Machine, Disk Horizontal	
Double spindle	20
Single spindle	18
Vertical	
Double spindle	18
All other types	17
Grinding Machine, Drill and Tap	
Combination	20
Grinding Machine, Drill Web Thinner Bench	
Double end	20
Single end	18
Floor	
Double end	20
Single end	18
Grinding Machine, Face Mill	18
Grinding Machine, Form, Blade and Bucket Root	20
Grinding Machine, Gear Cutter, Bevel	
Spiral type	18
Straight type	20
Grinding Machine, Hob, Cutter and Beamer Combination	18
Grinding Machine, Jig, Vertical	17
Grinding Machine, Knife and Shear	20
Grinding Machine, Profile	
Drawing type	17
Free hand type	18
Template type	17
Turbine blade	17
Grinding Machines, Radius, (all types	18
Grinding Machines, Saw Blade, (all types)	17
Grinding Machines, Single Point Tool Bench, (all types)	17
Floor, (all types)	18
Grinding Machines, Snagging, (all types)	20
Grinding Machine, Surface Reciprocating	

FSC 3415—Grinding Machines—Continued

Description	Service Life (years)
Horizontal spindle	20
Vertical spindle	18
Rotary	
Horizontal spindle	20
Vertical spindle	18
Grinding Machines, Tap Bench, (all types)	18
Floor, (all types)	18
Grinding Machine, Thread Chaser	22
Grinding Machine, Thread External	
Center type	20
Centerless	20
Chucking	22
Internal	
Chucking	22
Grinding Machine, Tool and Cutter	
Contour	18
Engraving	18
Flute and Radius	18
Plain	20
Radial relief	20
Universal	18
Grinding Machine, Utility Bench	
Double end	20
Single end	25
Floor	
Double end	20
Single end	25

FSC 3416—Lathes

Description	Service Life (years)
Lathe, Bar Horizontal, Automatic (Screw Machine)	
Multiple spindles	17
Single spindles	18
Numerical controlled	10
Lathe, Bench	
Automatic	16
Jewelers	25
Plain	25
Screw cutting, under 8" swing	24
Screw cutting, 8" swing and over	23
Turret	17
Lathe, Boring and Turning, Double End	
Automatic	20
Manual	23
Lathe, Boring and Turning, Single End	
Automatic	20
Manual	25
Lathe, Chucking, Between Centers, Automatic	
Under 9" swing over front slide	17
Lathe, Chucking, Horizontal, Multiple Spindle, Automatic	19
Lathe, Chucking, Horizontal, Single Spindle	
Automatic	16
Manual	10
Lathe, Engine, Manual	
Under 12" swing	25
12" to 16" swing	23
16" to 18" swing	22
18" to 20" swing	21
20" to 25" swing	20
25" swing and over	19
Lathe, Engine, Numerical Controlled	10
Lathe, Gap, Sliding Bed	
Under 50" swing thru gap	18
50" to 60" swing thru gap	21

FSC 3416—Lathes—Continued

Description	Service Life (years)
60" to 100" swing thru gap	25
100" swing thru gap and over	16
Lathe, Gap, Solid Bed	
Under 36" swing thru gap	18
36" to 48" swing thru gap	22
48" swing thru gap and over	20
Lather, Hollow Spindle, Center Drive	
24" to 30" swing over bed	18
30" to 40" swing over bed	22
40" to 48" swing over bed	24
48" swing and over	24
Lathe, Hollow Spindle, Gap Bed	
40" to 60" swing over bed	22
60" swing over bed and over	24
Lathe, Hollow Spindle, Single End	
18" to 25" swing over bed	21
25" to 48" swing over bed	22
48" and over swing over bed	24
Lathe, Manufacturing and Production	
Automatic	18
Lathe, Tool Room	
Under 24" swing	23
24" and over swing	21
Lathe, Tracer	
Automatic	17
All other types	18
Lathe, Turret, Inclined Bed	
Manual	18
Numerical controlled	10
Lathe, Turret Ram Plain	
Under one inch bar capacity	16
One inch bar capacity and over	20
Lathe, Turret Ram Universal	
Automatic	15
Manual	18
Numerical controlled	10
Lathe, Turret, Saddle, Cross Sliding Turret	
Manual	17
Numerical controlled	10
Lathe, Turret, Saddle, Fixed Center Manual	
Under 2 1/2" bar capacity	15
2 1/2" to 4 1/2" bar capacity	22
4 1/2" to 6 " bar capacity	23
6" bar capacity and over	22
Lathe, Turret, Saddle, Fixed Center, Numerical Controlled	10

FSC 3417—Milling Machines*

Description	Service Life (years)
Engraving Machine, Pantograph, Dimensional	24
Milling Machine, Airfoil, Automatic Tracer Controlled, Horizontal	18
Milling Machine, Bed Type	
Combination, horizontal and vertical	20
Horizontal	24
Rotary Table	22
Vertical	24
Milling Machines, Bench Type (all types)	22
Milling Machine, Bridge Type	
Vertical feeding head	18
Milling Machine, Cam Type	
Horizontal	18

*All Numerically Controlled Milling Machines = 10-year Physical Life.

FSC 3417—Milling Machines* —Continued

Description	Service Life (years)
Milling Machine, Knee Type	
Combination, horizontal and vertical	16
Horizontal	20
Vertical	19
Milling Machines, Planer Type (All Types)	25
Milling Machine, Profiling	
Bed type	22
Bridge type	22
Knee type	17
Planer type	18
Rotary table	17
Skin	16
Spar	16
Traveling column	18
Milling Machine, Router	
Radial arm	17
Stationary arm	17
Milling Machine, Slot	18
Milling Machines, Thread, (All Types)	18
Milling Machine, Traveling Gantry	
Horizontal	20
Vertical	22
Milling Machine, Traveling Housing	
Horizontal	20
Milling Machines, Traveling Saddle, Ram Type, Special Design, Tracer Controlled (All Types)	18
Semi-Automatic Operated	
Horizontal	20
Milling Machine, Turbine Blade	
Fixed bed	18
Hydraulic tracer	19
Semiautomatic operated	19

FSC 3418—Planers and Shapers

Description	Service Life (years)
Planers, (All Types)	25
Shapers, (All Types)	25

FSC 3419—Miscellaneous Machine Tools

Description	Service Life (years)
Buffing and Polishing Machine, Floor Mounted	18
Buffing Machine, Rotary	
Buff type	19
Chambering Machine, Horizontal	
Turret type	18
Chamfering Machine	
Breech thread type	16
Cutter type	18
Roll type	18
Combination Boring and Honing Machine	21
Combination Buffing and Grinding Machine	22
Countersinking Machines, (All Types)	21
Deburring Machine	
Roll type	17
Rotary brush type	16
Drill and Centering Machine	17
End Finishing Machine, Tube and Rod	20
Finishing Machine	
Abrasive belt	17
Abrasive belt and disk	17
Ball	18
Rotary turret	16
Wire die	19
Grinding Machine, Swing, Abrasive Belt	18

FSC 3419—Miscellaneous Machine Tools—Continued

Description	Service Life (years)
Honing Machine	
Angular	20
Horizontal	25
Mandrel type	22
Superfinishing	20
Vertical	22
Keyseating Machine	25
Lapping Machine	
Center	19
Cylindrical Lap	18
Flat Lap	19
Gage	19
Roller	19
Shaft	19
Milling and Center Drilling Machine	21
Nipple Threading Machine	22
Pivot Polishing Machine	
Bench Type	25
Floor Type	23
Plate and Sheet Finishing Machine	
Abrasive belt	22
Brush type	20
Profile Finishing, Abrasive Belt	22
Reaming Machine, Deep Hole	21
Rifling Machine, Gun Barrel	21
Shaving Machine	22
Speed Lathes, (All Types)	17
Threading Machine	
Bolt, die head	22
Pipe	22
Pipe and bolt	22
Single point lathe type	17

FSC 3422—Rolling Mills and Drawing Machines

Description	Service Life (years)
Combination Rolling Mill and Wire Mills, (All Types)	15
Descaling Machine, Billet	15
Peeling Machine, Billet	15
Pipe and Tube Mill	15
Roller Leveler	15
Rolling Mill, (All Types)	15
Straightening and Contour Correction Machine	
Roll type	15
Strip Coiling Machine	15
Strip Uncoiling Machine	15
Tube Drawing Machine	15
Wire Coiling Machine	15
Wire Drawing Machine	15

FSC 3424—Metal Heat Treating Equipment

Description	Service Life (years)
Control Station, Induction Heating	
Motor Generator	15
Flame Hardening Machines, (All Types)	16
Forges, (All Types)	20
Furnace, Heat Treating	
Bath type	18
Bell type	18
Box type	20
Car type	18
Continuous, catenary type	18
Continuous, conveyor type	16
Continuous, pusher type	16
Continuous, roller hearth type	16

FSC 3424—Metal Heat Treating Equipment—Continued

Description	*Service Life (years)*
Continuous, rotary hearth type	16
Continuous, shaker hearth type	12
Continuous, tower type	20
Continuous, walking beam type	16
Elevator type	14
Pit type	20
Traveling Chamber	14
Generator, Controlled Atmosphere	17
Heater, Heat Treating, Induction	
Motor Generator Type	17
Nonrotating type	15

FSC 3431—Welding Equipment Arc

Description	*Service Life (years)*
Power Supply	
Rectifier	13
Transformer	14
Power Unit, Stud Welding	
Battery type	5
Generator type	17
Rectifier type	13
Welding Equipment and Power Supply, Semiautomatic, (All Types)	10
Welding Equipment, Plasma	
Torch type	10
Welding Equipment, Semiautomatic, (All Types)	12
Welding Heads, Automatic Operated, (All Types)	12
Welding Machines, Arc, Automatic, (All Types)	12
Welding Machine, Generator Type, AC Arc	
Diesel engine driven	15
Electric motor driven	17
Gasoline engine driven	15
AC–DC, Arc	
Diesel engine driven	15
Electric motor driven	17
Gasoline engine driven	15
DC, Arc	
Diesel engine driven	15
Electric motor driven	17
Gasoline engine driven	15
Welding Machine, Rectifier Type, (All Types)	13
Welding Machines, Stud Automatic, (All Types)	7
Welding Machine, Transformer Type	
AC Arc	13

FSC 3432—Electrical Resistance Welding Equipment

Description	*Service Life (years)*
Brazing and Soldering Equipment	
Resistance, portable type	12
Brazing Machine	
Resistance, butt type	12
Soldering Equipment	
Resistance, portable	12
Welding Equipment, Resistance, Portable Cabinet Type, (All Types)	7
Gun Type	
Air operated	18
Hand operated	18
Hydraulically operated	16
Welding Machine, Resistance	
Band saw blade, butt type	16
Flash, butt type	16
Multiple spot type	15
Projection, direct energy	7

FSC 3432—Electrical Resistance Welding Equipment —Continued

Description	*Service Life (years)*
Seam	17
Spot	18
Upset, butt type	16

FSC 3433—Gas Welding, Heat Cutting, and Metallizing Equipment

Description	*Service Life (years)*
Brazing Machine	
Gas	6
Cutting Equipment, (All Types)	10
Cutting Machine, Electric Arc	
Generator type	17
Rectifier type	13
Electric Resistance	
Reverse Butt	15
Flame	
Flame and plasma	15
Portable	16
Stationary	18
Cutting Outfit	
Electric Arc, Portable	15
Metallizing Equipment	
Flame	18
Plasma spray	13
Spray gun	15
Tungsten carbide spark discharge	15
Vacuum chamber	10
Power Supply and Gun, Metallizing	
Electron beam	10
Soldering Machine, Gas, Automatic and Semiautomatic	18
Spray Gun, Metallizing, Flame	15
Welding Machine, Gas	16

FSC 3436—Welding Positioners and Manipulators

Description	*Service Life (years)*
Manipulator, Automatic Welding Head, Stationary Base	
Gantry type	15
Traveling boom type	15
Traveling head type	16
Manipulator, Automatic Welding Head, Traveling Base	
Traveling boom	12
Traveling head	15
Positioner, Welding	
Head and tailstock type	17
Headstock	17
Spindle type, hand operated	20
Spindle type, power operated	17
Table type, hand operated	20
Table type, power operated	17
Tailstock type	17
Turning Rolls, Welding	
Idler type	18
All other types	15
Turntable	
Welding	20

FSC 3438—Miscellaneous Welding Equipment

Description	*Service Life (years)*
Brazing Outfit	
Induction, gas shielded	12
Infrared, pipe and tubing	12
Brazing Equipment, Ultrasonic	10
Chamber, Welding	
Controlled atmosphere	18

FSC 3438—Miscellaneous Welding Equipment —Continued

Description	Service Life (years)
Cutting and Welding Equipment	
Flame and arc type	15
Plasma and arc type	10
Cutting and Welding Machine	
Electron beam	10
Flux Recovery Unit, Welding	10
Oven, Granulated Welding Flux	18
Power Supply, Electron Beam	10
Soldering Machines	
Ultrasonic	15
Commutator	15
Dip, Mechanical	18
Wave	10
Welding Equipment, Ultrasonic	15
Welding Head Oscillator	
Electronic	15
Mechanical	17
Welding Machines, Cold Pressure, (All Types)	15
Welding Machine, Electrogas-Slag	
Automatic	15
Welding Machine, Electron Beam	
Hard vacuum type	7
Non-vacuum type	10
Welding Panel, Arc	10

FSC 3441—Bending and Forming Machines

Description	Service Life (years)
Bending and Folding Machine, Tangent	20
Bending and Twisting Machine, Hydraulic	15
Bending Brake	
Box and pan	21
Standard apron	23
Bending Machine	
Angle beveling rolls	24
Corrugating rolls	24
Flanging, sheet	21
Horizontal, roll	23
Initial pinch rolls	23
Jogging rolls, plate	23
Pyramid rolls	23
Ram	24
Rotary head bar	22
Rotary head pipe and tube	22
Vertical rolls	24
Wrapping rolls, plate	22
Expanding and Shrinking Machine, Cylindrical	14
Expanding Machine, Cylindrical	20
Folding Machine, Adjustable Bar	21
Forming Machine	
Combination bulldozer and stretch wrap	22
End Flaring, pipe and tube	24
End Flaring, squaring, burring, bending	24
Grooving	20
Induction heating, bar	20
Multiple rolls	20
Radial draw forming	20
Rotary disk	20
Rotary disk, multiple operation	20
Stretch-wrap	18
Planishing Machine, Seam Rolling	
Cylindrical	20
Plate	20
Press Brake	22
Press, Forming and Shearing	22
Shrinking and Stretching Machine	20

FSC 3441—Bending and Forming Machines—Continued

Description	Service Life (years)
Shrinking Machine, Cylindrical	20
Straightening Machine, Roll	
Cylindrical	21
All other types	22
Stretching Machine, Rotary Head	20

FSC 3442—Hydraulic and Pneumatic Presses

Description	Service Life (years)
Press, Hydraulic	
Alligator, swaging	20
Flexible die	18
Hot forming	18
Isostatic	16
Stretch draw	18
Variable positioning	18
Press, Hydraulic, Horizontal and vertical (combination)	22
Press, Hydraulic, Horizontal	
C-Frame	18
Open rod	22
Opposed cylinder	20
Straight sided	18
Tie bar type	22
Press, Hydraulic, Vertical	
C-Frame	18
Open rod	23
Straight sided	18
Press, Pneumatic, Vertical, (All Types)	18
Press, Piercing	18

FSC 3443—Press, Mechanical Power

Description	Service Life (years)
Press, Mechanical, Horizontal, C-Frame	
Single crank	17
Press, Mechanical, Horizontal, Straight Sided	
Single crank	18
Presses, Mechanical, Inclinable, (All Types)	16
Press, Mechanical, Multiple Plunger	
Vertical	21
Presses, Mechanical, Pull Down, (All Types)	20
Press, Mechanical, Vertical, C-Frame	
Double action	17
Single action	18
Press, Mechanical, Vertical, Straight Sided	
Double action	19
Single action	20

FSC 3444—Manual Presses

Description	Service Life (years)
Press, Manual, Hydraulic, Horizontal, Tie Bar	20
Presses, Manual Hydraulic, Vertical, (All Types)	20
Press, Manual, Rack and Pinion, Vertical (All Types)	18
Presses, Manual, Screw Type, (All Types)	18
Press, Manual, Variable Positioning, Hydraulic	
Open rod	20

FSC 3445—Punching and Shearing Machines

Description	Service Life (years)
Punching Machines, Combination, (All Types)	22
Punching Machine, Double End, Vertical	22
Punching Machine, Single End	
Horizontal	24
Portable	20
Vertical	24
Punching Machine, Turret Type	20

FSC 3445—Punching and Shearing Machines—Continued

Description	*Service Life (years*
Shearing Machines, Angle, (All Types)	20
Shearing Machine	
Bar and angle	20
Bar and cable	20
Bar-angle-slitting	20
Bar, alligator	18
Bar, guillotine	18
Bar, housing	20
Bar, open throat	18
Bar, sprue cutter	20
Form and pierce	18
Plate, squaring	20
Plate, throatless	20
Plate, vertical	20
Rotary, slitting	18
Rotary, throatless	20
Straightening and form	20
Forging Machine, Air Heading and Upsetting, Hot	
Rock drill	20
Forging Machine, High Energy	
Compressed gas forming	15
Electromagentic forming	12
Forging Machine, Mechanical	
Heading and trimming, cold	20
Heading and upsetting, hot	22
Nut	22
Roll	22
Rotary kneading, cold	20
Swaging, rotary	20
Hammers, Mechanical, (All Types)	25
Hammers, Steam or Air, (All Types)	25

FSC 3447—Wire and Metal Ribbon Forming Machine

Description	*Service Life (years)*
Forming Machines, (All Types)	20
Forming Machine, Press	
Wire and Metal Ribbon	25

FSC 3447—Wire and Metal Ribbon Forming Machine—Continued

Description	*Service Life (years)*
Wire, single slide	25
Wire, Brading Machine	25
Wire, Cabling Machine	20
Wire, Stranding Machine	20
Wire, Twisting Machine	20

FSC 3448—Riveting Machines or Dimpling Machines

Description	*Service Life (years)*
Dimpling Machine, Stationary Squeeze	16
Riveting and Drilling Machine, Squeeze, Automatic Feed, C-Frame	15
Riveting and Punching Machine, Squeeze, Automatic Feed, C-Frame	15
Riveting and Staking Machine, Stationary, Single Head, Impact	16
Riveting Machine	
Eccentric crank	16
Multiple head	16
Rotary vibrating helve	15
Spinning	15
Squeeze	15
Stationary, one shot hammer	15

FSC 3449—Miscellaneous Secondary Metal Forming and Cutting Machines

Description	*Service Life (years)*
Embossing Machines, Single Line, (All Types)	17
Graduating Machine	
Circular milling type	24
Circular shaper type	24
Linear shaper type	25
Knurling Machine, Shell	23
Marking Machines, (All Types)	17
Metal Stitching Machine, Throat Type	18
Roll Flowing Machines, (All Types)	10
Rolling Machines, Thread, (All Types)	18

Section III. Chart Percentage Table

Service life (years)	*Chart percent*
5	40.0
6	33.3
7	28.6
8	25.0
9	22.2
10	20.0
11	18.9
12	16.7
13	15.4
14	14.3
15	13.3
16	12.5
17	11.8
18	11.1
19	10.5
20	10.0
21	9.5
22	9.1
23	8.7
24	8.3
25	8.0

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ARNG: None.
USAR: D (Qty rqr block no. 508)

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